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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) An optical information recording medium comprising a substrate, at least m (m is an integer of 2 or more) information layers provided on the substrate,

wherein each of the m information layers comprises a recording layer that changes irreversibly between a state A and a state B that are optically different from each other,

in a case where the m information layers are taken as first through m-th information layers in an order from a laser beam incidence side, when the recording layer included in the j-th information layer (j is an integer satisfying $1 \leq j \leq m - 1$) is taken as the j-th recording layer, and when a transmittance of the j-th information layer at a time when the j-th recording layer is in the state A is TAj (%) and a transmittance of the j-th information layer at a time when the j-th recording layer is in the state B is TBj (%), the following relationship is satisfied in the j-th information layer:

$$0 \leq |TAj - TBj| / (TAj,TBj)max \leq 0.10$$

where (TAj,TBj)max is a larger value of TAj and TBj,

at least one recording layer of the first through (m – 1)th recording layers is formed of a material having a complex index of refraction (n – ik, where n is a refractive index and k is an extinction coefficient) that is different from that of the m-th recording layer included in the m-th information layer, ~~and~~

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in the first through m-th recording layers, the recording layer included in the information layer provided nearer to the laser beam incidence side has a lower concentration of oxygen atoms, and

when a difference in the refractive index between a case where the m-th recording layer is in the state A and a case where it is in the state B is Δnm, a difference in the extinction coefficient therebetween is Δkm, a difference in the refractive index between the case where the j-th recording layer is in the state A and the case where it is in the state B is Δnj, and a difference in the extinction coefficient therebetween is Δkj, the following relationship is satisfied in at least one information layer of the first through $(m-1)$th information layers

$$|\Delta nm| + |\Delta km| > |\Delta nj| + |\Delta kj| .$$

2. (Cancelled)

3. (Original) The optical information recording medium according to claim 1, wherein further the following relationship is satisfied in the j-th information layer

$$(TAj + TBj) / 2 \geq 50 .$$

4. (Original) The optical information recording medium according to claim 1, wherein at least one of the first through m-th recording layers contains an oxide.

5. (Original) The optical information recording medium according to claim 4, wherein the first recording layer contains an oxide.

6. (Original) The optical information recording medium according to claim 1, wherein at least one of the first through m-th recording layers contains Te-O-M (where M is a material containing at least one element selected from the group consisting of metal elements, semimetal elements and semiconductor elements).

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7. (Original) The optical information recording medium according to claim 6, wherein all of the first through m-th recording layers contain Te-O-M.

8 - 9. (Cancelled)

10. (Previously Presented) The optical information recording medium according to claim 6, wherein a concentration of the M atoms in the first recording layer is higher than that in the second through m-th recording layers.

11. (Original) The optical information recording medium according to claim 1, wherein at least one of the first through m-th recording layers contains at least one selected from the group consisting of Sb-O, Sb-Te-O, Ge-O, Sn-O, In-O, Zn-O, Ga-O, Mo-O, W-O, and Ti-O.

12. (Original) The optical information recording medium according to claim 1, wherein m is 4 or more.

13. (Original) The optical information recording medium according to claim 1, wherein m is 4 and the following relationship is satisfied

$$(TA1 + TB1) / 2 \geq 80 \text{ and}$$
$$(TA2 + TB2) / 2 \geq 70 \text{ and}$$
$$(TA3 + TB3) / 2 \geq 70 .$$

14. (Original) The optical information recording medium according to claim 1, wherein the first through m-th recording layers have a thickness of 80 nm or less.

15. (Previously Presented) The optical information recording medium according to claim 1, wherein an information layer including a recording layer that can change

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reversibly between the state A and the state B that are optically different from each other further is provided.

16. (Currently Amended) A method for manufacturing an optical information recording medium in which a plurality of information layers are provided on a substrate, comprising

at least m (m is an integer of 2 or more) steps of forming an information layer including a recording layer that can change irreversibly between a state A and a state B that are optically different from each other,

wherein in a case where the information layers formed in the m steps are taken as first through m-th information layers in an order from a laser beam incidence side, when the information layer provided in the j-th step from the laser beam incidence side is taken as the j-th information layer (j is an integer satisfying $1 \leq j \leq m - 1$) and the recording layer included in the j-th information layer is taken as a j-th recording layer, and when a transmittance of the j-th information layer at a time when the j-th recording layer is in the state A is TAj (%) and a transmittance of the j-th information layer at the time when the j-th recording layer is in the state B is TBj (%), at least one recording layer of the first through (m – 1)th recording layers is formed of a material having a complex index of refraction (n – ik, where n is a refractive index and k is an extinction coefficient) that is different from that of the m-th recording layer included in the m-th information layer in such a manner that the following relationship is satisfied in the j-th information layer:

$$0 \leq |TAj - TBj| / (TAj,TBj)max \leq 0.10$$

where (TAj,TBj)max is a larger value of TAj and TBj, ~~and~~

each of the recording layers is formed so that the recording layer included in the information layer provided nearer to the laser beam incidence side has a lower concentration of oxygen atoms, and

when a difference in the refractive index between a case where the m-th recording layer is in the state A and a case where it is in the state B is Δnm, a difference in the

extinction coefficient therebetween is Δkm, a difference in the refractive index between the case where the j-th recording layer is in the state A and the case where it is in the state B is Δnj, and a difference in the extinction coefficient therebetween is Δkj, the first through (m – 1)th recording layers are formed so that the following relationship is satisfied in at least one information layer of the first through (m – 1)th information layers

$$|\Delta nm| + |\Delta km| > |\Delta nj| + |\Delta kj| .$$

17. (Original) The method for manufacturing the optical information recording medium according to claim 16,

wherein in at least one step of the m steps, a write-once recording layer containing Te-O-M is produced by reactive sputtering, using a target containing at least Te and M (M is a material containing at least one element selected from the group consisting of metal elements, semimetal elements, and semiconductor elements) and a film-forming gas containing at least oxygen gas.